Mandatory reporting of antimicrobial resistance in Europe

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Aim: Map mandatory notifications of 12 WHO priority pathogens in Europe (28 EU and 4 EFTA) and describe their surveillance frameworks

Only 15 out of 32 European countries (47%) mandate notification of the 12 WHO priority pathogens

Surveillance objective

Monitoring of:

Antibiotic resistance (definition: infection and colonisation)	6
Antibiotic resistance (definition: not defined)	3
Only infections due to resistant bacteria	3
Only outbreaks/clusters due to resistant bacteria	3

Surveillance setting

Healthcare and community (9, 60%) Healthcare (3, 20%) Community (1, 7%) Not specified (2, 13%)

Notification period

Less than 72 hours (6, 40%) 7-10 days (2, 13%) Not specified (7, 47%)

Target pathogens

Methicillin-resistant Staphylococcus aureus	12, 80%
Vancomycin-intermediate and resistant Staphylococcus aureus	5, 30%
Vancomycin-resistant Enterococci	8, 53%
Carbapenem-resistant Enterobacteriaceae	13, 87%
Carbapenem-resistant Acinetobacter baumannii	8, 53%
Carbapenem-resistant Pseudomonas aeruginosa	7, 47%
Cephalosporin-resistant Enterobacteriaceae	9, 60%

No surveillance system monitors resistance in Salmonella spp, *Campylobacter* spp, *Neisseria gonorrhoeae*, *Helicobacter pylori*

Surveilla	ance data	collection
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	Reported	Not specified
Type of specimen	7, 47%	8, 53%
Resistance identification	4, 27%	11, 73%
Type of infection	6, 40%	9, 60%
Age and gender	11, 73%	4, 27%
Clinical outcome	7, 47%	8, 53%
Risk factors	8, 53%	7, 47%
Control and preventive measures	4, 27%	11, 73%

Surveillance results

Frequency of reporting Weekly (4, 27%) Monthly (2, 13%) Trimester/ quarterly/ half-yearly (1, 7%) Yearly (3, 30%)	Data s Specim Sampli Infectio Age (6) Gende
Indicators	Clinica
Number of cases (7, 47%)	risk fao
Incidence of resistance (4, 27%)	Report

ncidence of infections due to ARB (3, 20%)	Rep
Number of outbreaks or clusters (6, 40%)	Not

	How does this	s compare with voluntary	y surveillance activ	vities in Europe?*
Data collection	Mandatory	Voluntary	Results	Mandatory
Target pathogens	MRSA, CR-E	MRSA, VIRSA, VRE	Dissemination	Weekly
		CR-E, CR-AB, CR-PA, CR-E	Indicator	Number of cases
Numerator	Number of cases	Number of resistant isolates	Trigger events	Number of outbreaks/clusters
Denominator	-	Total isolates	Language of	Deviewel
Clinical data	Risk factors	-	reporting	Regional

*Information provided represents data reported by majority of systems under each category. Voluntary surveillances mapped and described by Nunez-Nunez et al. Clin Microbiol Infect. 2017 were included.



Methods: Review of (public-access) national guidelines without applying language restrictions, and extraction of variables-specific data

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nen (2 *,* 13%) ing (2, 13%) ion type (2 , 13%) , 40%) er **(6, 40%)**

al outcome or ctors

orted (1, 7%) t reported (14, 93%)

Voluntary Yearly

- Percentage
- resistance
- English



Figure: Countries with mandatory notification of WHO priority pathogens (human medicine) Gram-negative bacteria Gram-positive bacteria

KEY FINDINGS

- Only 15 European countries mandate notifications for critical WHO priority pathogens
- Heterogenous protocols
- Clinical outcome and risk factors included in less than half the systems
- Public access to surveillance results unavailable in some
- **Detailed reports** (with information on sampling and epidemiology details) of surveillance results **unavailable** for **majority** of systems

CONCLUSIONS

- Surveillance and reporting of clinically significant multidrug-resistant Gram-negative bacteria is still lacking in comparison to Gram-positive bacteria
- Global surveillance and reporting is needed to reducing the spread of ARB in healthcare and community settings. Alternative approaches to implement mandatory notification should be evaluated and clarified based on efficiency and cost effectiveness.



